

ACCESSORY ARRANGEMENT FOR A REFRIGERATOR DOOR AND CAN  
HOLDER FOR A REFRIGERATOR

Field of the Invention

The present invention is directed to a an arrangement  
5 of accessories, which can have the form of shelves,  
can holders, and the like, to be removably affixed to  
the internal wall of a refrigerator door according to  
a distribution that may be varied as a function of the  
characteristics of use of the refrigerator. The  
10 invention can be applied both to medium or small size  
refrigerators of individual or restricted use, such as  
the refrigerators used in hotel rooms, flats, offices,  
etc., and to large refrigerators.

The invention is further related to a particular can  
15 holder construction to be mounted to the internal wall  
of the door or in the interior of the cabinet of a  
refrigerator.

Background of the Invention

There are well known in the prior art different  
20 systems for the fixation of shelves, can holders, and  
other accessories to the internal wall of a  
refrigerator door, said accessories being designed and  
dimensioned to occupy determined project positions,  
according to which retaining means are provided,  
25 incorporated to the internal wall of the refrigerator  
door.

These commonly used constructive solutions allow the  
shelves, the can holders, and other accessories of  
this kind, which are previously manufactured in  
30 separate pieces, to be removably fitted and retained  
in retaining means that are incorporated, generally as  
a single piece, to the internal wall of the  
refrigerator door.

While they allow for a certain variation in the  
35 arrangement of the internal accessories of the

refrigerator door, said solutions present little versatility, since the accessories are usually restricted to the number and to the positioning defined in the project, most of the time limited to a single option which can only be altered by suppressing the accessory. In other words, the known arrangements are invariable in terms of the quantity and positioning of the accessories, permitting, only in some cases, the repetition of a determined accessory in a position which, according to the project, should be occupied by other type of accessory, impairing the functional and esthetic characteristics of the refrigerator.

The known arrangements do not allow the user, the manufacturer, or the distributor to adjust the characteristics of the internal wall of the refrigerator according to their needs, or to modify said characteristics according to variable needs of utilization of the refrigerator.

Another limitation to the functionalism of the known accessory arrangements is due to the fact that the can holders are designed to be compulsorily and exclusively mounted in a certain position to the internal wall of the refrigerator door, thus not being able to be used in any other part of the refrigerated environment. Moreover, the known can holders, which take the form of tubular housings, are insufficiently ventilated, impairing the efficient refrigeration of the cans.

### Objects of the Invention

By reason of the limitations of versatility imposed by the known solutions, it is an object of the present invention to provide an accessory arrangement for a refrigerator door, which allows the user or the manufacturer to modify, substantially and at any time,

the positioning and the number of different accessories, such as shelves, can holders, etc., which are removably affixed to the internal wall of the refrigerator door, according to the required use.

- 5 It is a further object of the invention to provide an accessory arrangement such as mentioned above, which is presented in the modular form, allowing at least one entire fraction of the space occupied by one accessory in the internal wall of the refrigerator  
10 door to be selectively and optionally occupied by another accessory different from that whose space is being used.

It is a further object of the present invention to provide a can holder, which can be selectively and  
15 optionally mounted in different positions to the internal wall of the door or in the interior of the cabinet of a refrigerator and which allows for an efficient circulation of the ambient air inside the refrigerator around the cans stored in the can holder.

20 Summary of the Invention

The invention proposes an arrangement of accessories for a refrigerator door, said accessories comprising shelves, can holders, and other means for supporting the products to be refrigerated.

- 25 According to the invention, the refrigerator door presents an internal wall carrying retaining means, which are identical to each other and disposed according to horizontal rows and vertical columns, which are spaced from each other according to a  
30 predetermined standard, so that each retaining means can receive and retain, simply by fitting a respective engaging means incorporated to an accessory to be removably affixed to the internal wall of the door.

The arrangement is designed with distances between the  
35 vertical columns of the retaining means and with

widths for the accessories, so that the useful width of said internal wall can be fully occupied with multiple accessories adjacently disposed side by side, each accessory having at least one engaging means fitted in a respective retaining means.

#### Brief Description of the Drawings

The invention will be described below, with reference to the enclosed drawings, given by way of example of a possible embodiment for the present arrangement and in which:

Figures 1 and 2 are inner perspective views of two models of a refrigerator door, with the internal wall being constructed to receive different accessory arrangements, each figure illustrating one arrangement;

Figure 3 is a front elevational view of the internal wall of a refrigerator door constructed according to the invention and to which is adapted an accessory module in the form of a can holder;

Figure 4 is a horizontal cross-sectional view of the door, taken according to line IV-IV of figure 3;

Figure 5 is an enlarged detail of the left-hand end portion of figure 4;

Figure 6 is a rear perspective view of the can holder module illustrated in figure 3;

Figures 7, 8, 9, and 10 are, respectively, front, lateral, rear and upper views of the accessory module in the form of a can holder illustrated in figure 3; and

Figure 11 is a lateral elevational view of the can holder in the condition in which it is mounted below an internal shelf of a refrigerator cabinet.

#### Detailed Description of the Invention

As illustrated in the appended drawings, the invention has the purpose to provide the internal wall 11 of the

door 10 of a refrigerator with different accessories in the form of can holders 20, median shelves 30, and wire frame shelves 30a, which can take forms different from those illustrated in the drawings.

5 According to the drawings, the internal wall 11 of the door 10 is configured to carry retaining means 12 disposed according to horizontal rows and vertical columns, which are spaced from each other according to a predetermined pattern, so that each retaining means  
10 12 can receive and retain, simply by fitting a respective engaging means 40 incorporated to one of said can holders 20, median shelves 30, and wire frame shelves 30a to be removably affixed to the internal wall 11 of the door 10.

15 In the illustrated embodiment, the retaining means 12 of each vertical column are formed in the same channel 13 having a bottom wall 13a that is lowered in relation to the internal wall 11 of the door 10, each retaining means 12 being defined by a respective  
20 extension of the channel 13 presenting a front opening with reduced width, defining therein a female fit of the dove tail type, so as to receive, by a downward fit, a respective engaging means 40.

The distances between the vertical columns of the  
25 retaining means 12 and the width of the accessories are designed so that the useful width of the internal wall 11 of the door 10 can be fully occupied by multiple accessories disposed side by side, each having at least one engaging means 40 to be fitted in  
30 a respective retaining means 12.

In the preferred construction, the distances between the vertical columns of the retaining means 12, i.e., the distances between the channels 13 are equal to each other and correspond to the width of an  
35 accessory, which in the illustrated example is a can

holder 20, or they may also correspond to half the width of the accessory or to other entire fraction of the width of the accessory, as in the case of the median shelves 30 and the wire frame shelves 30a, which present a width that is twice the distance between two adjacent retaining means 12 in the same horizontal row.

Although the horizontal rows of the retaining means 12 may occupy the whole useful height of the internal wall 11 of the door 10, in the illustrated embodiment they occupy only part of said height, from an upper edge of the door 10.

Preferably, the horizontal rows of the retaining means 12 comprise at least two groups of rows, with the rows of each group being equally spaced from each other and the confronting rows of two adjacent groups being separated from each other by a distance that is larger than that of the rows of each group. This arrangement, in which two groups of horizontal rows are spaced from each other is adequate, since median shelves 30 and wire frame shelves 30a are used in conjunction with the can holder 20, said shelves usually requiring a certain free space above them, so as to be fully used. Regarding the construction of the retaining means 12 in the form of a dove tail female fit, each engaging means 40 comprises a rear projection, of the respective accessory in the form of a can holder 20, of a median shelf 30, or of a wire frame shelf 30a, presenting a cross section contour that is similar to and slightly smaller than the cross section contour of the extensions of the channel 13 that define the retaining means 12, so as to be fitted in the interior of said extensions when said engaging means 40 is slidably downwardly displaced after inserted in the channel 13, immediately above the adjacent retaining

means 12. For the downward vertical locking of the accessory, its rear end, which defines the engaging means 40, presents an upper end 41 with a contour which is similar to and slightly smaller than that of the channel 13 and which seats on the upper edge of the retaining means 12.

In the illustrated embodiment, each engaging means 40 comprises a pair of flaps 42 divergingly projecting from a respective accessory in the form of a can holder 20, median shelf 30, or wire frame shelf 30a, in order to define a dove tail fit with the retaining means 12 formed in the channel 13.

According to the exemplary construction illustrated, each accessory in the form of a can holder 20 comprises at least two mutually parallel tubular frames 21, which are vertically aligned and laterally adjacent and have rear ends, defined by respective bottom walls 22 coplanar to each other and which will be seated against the internal wall of the door 10, and open front ends, which are substantially parallel to the bottom walls 22 and incorporated to a front flange 23 of rectangular contour.

As illustrated, the tubular frames 21 define housings for small beverage cans and have their axes upwardly inclined from the bottom walls 22. The tubular frames 21 have preferably cylindrical lateral walls, intersecting and laterally communicating in relation to each other and provided with windows 26.

In the construction of the illustrated can holder 20, the bottom wall 22 of the upper tubular frame 21 is externally provided with a respective engaging means 40 which can be constructed as described above. In this case, each can holder 20 is suspended by the tubular frame 21, although extending downwardly, so as to have its lower tubular frame 21 covering the

retaining means 12 disposed immediately below.

As already illustrated, each can holder 20 has its front flange 23 incorporating upper and lower end flaps 24 projecting rearwardly orthogonal to the plane of the bottom walls 22 and which are medianly provided with a cut 27 in order to save material and to increase ventilation, the upper end flap 24 being attached to the adjacent cylindrical lateral wall of the upper tubular frame 21 by means of structural ribs 25 located in both sides of the cut 27.

As already mentioned, the invention aims at providing a versatile can holder 20, which can be applied both to the internal wall 11 of the door 10, and to an internal region of the refrigerator cabinet, allowing the cans, in either of the mounting conditions, to be adequately submitted to the circulation of refrigerated air inside the refrigeration appliance. The illustrated construction described for the can holder 20 allows the latter to be easily mounted below a shelf 15 provided inside the refrigerator and which presents, inferiorly, a pair of rails 16 over which is slidably seated the upper end flap 24 of the can holder 20, as illustrated in figure 11.

It should be further understood that the shelf 15 could be of the type attached against the internal wall 11 of the door 10. In this case, the can holder 20 can be removably adapted under any shelf of a refrigerator door lacking the retaining means 12, it being sufficient that the usual shelves of the door be inferiorly provided with assemblies of pairs of rails 16 disposed so as to permit the fit of the upper end flaps 24 of respective can holders 20, which can also be arranged side by side, as a function of the distance defined between each pair of adjacent rails 16.



In figures 1 and 2 of the drawings, two distinct accessory arrangements affixed to the internal wall 11 of the door 10 are illustrated. In the example of figure 1, there are affixed to the upper region of the internal wall 11 of the door 10 four can holders 20 for storing small beverage cans. In the median region of the internal wall 11 there are affixed two median shelves 30, which are identical to each other and present a substantially parallelepipedic shape with an open top. In the region of the internal wall 11 there is affixed, by locking means 17 disposed close to the opposite sides of the internal wall 11, a lower shelf 30b occupying the whole useful internal width of the door 10. It should be noted that the locking means 17 are different from the retaining means 12 and that they can be constructed in any way that is adequate for locking the lower shelf 17.

In figure 2 there is illustrated a door 10 presenting a lower height than that of figure 1 and having its internal wall equally provided with four vertical columns of retaining means 12. To said columns there are attached one median shelf 30, three wire frame shelves 30a, and a lower wire frame shelf 30c that can be affixed to the internal wall 11 by the locking means 17 described above in relation to the lower shelf 30b of the door illustrated in figure 1.

Each of the accessories defined by the median shelves 30 and wire frame shelves 30a comprises a pair of engaging means 40 to be fitted in respective retaining means 12 disposed in the same horizontal row, but in two adjacent vertical columns.

As mentioned above, the construction proposed herein allows both the positioning and the number of the can holders 20 and of the median shelves 30 and wire frame shelves 30a to be altered. In figure 2, for example,

the three wire frame shelves 30a can be replaced by six can holders 20, four of them disposed as in figure 1 and the other two disposed immediately below, at the right hand half of the internal wall 11.

- 5 While only two possible arrangements for mounting the accessories in one type of retaining means incorporated to the internal wall of the door have been described and illustrated, it should be understood that alterations of shape and distribution
- 10 could be made without departing from the inventive concept defined in the claims that accompany the present specification.